**IN THE CLAIMS**

1. (Currently Amended) An imaging system comprising:

A primary gradient coil assembly; and

A shield coil assembly connected in series to said primary gradient coil assembly, said shield coil assembly comprising:

a first gradient shield coil; ~~and~~

a second gradient shield coil connected in parallel to said first gradient shield coil;

a pair of voltage rails in communication with said first gradient shield coil and said second gradient shield coil;

a first subcircuit in communication with said first gradient shield coil; and

a second subcircuit in communication with said second gradient shield coil, said first subcircuit and said second subcircuit independently adjustable such that the currents through said first gradient shield coil and said second gradient shield coil may be independently adjusted.

2. (Original) An imaging system as in claim 1 further comprising

at least one additional gradient shield coil connected in parallel to said first gradient shield coil and said second gradient shield coil.

3. (Currently Amended) An imaging system as in claim 1 wherein said first subcircuit and said second subcircuit are adjusted such that said first gradient shield coil has a resistance equal to said second gradient shield coil.

4. (Currently Amended) An imaging system as in claim 1 wherein:

said first gradient shield coil comprises a plurality of first shield winding turns; and

said second gradient shield coil comprises a plurality of second shield winding turns, said plurality of second shield winding turns having a non-identical ~~the same~~ number of turns as said plurality of first shield winding turns.

5. (Original) An imaging system as in claim 1 wherein:

said first gradient shield coil comprises a plurality of first shield winding turns and a plurality of winding gaps, each of said plurality of winding gaps formed between consecutive turns of said plurality of first shield winding turns; and

said second gradient shield coil comprises a plurality of second shield winding turns, each of said plurality of second shield winding turns positioned within on of said winding gaps.

6. (Original) An imaging system as in claim 5 wherein said plurality of first shield winding turns and said plurality of second shield winding turns are positioned within a single winding plane.

7. (Original) An imaging system as in claim 1 wherein said shield coil assembly comprises a plurality of winding turns formed in an asymmetrical pattern.

8. (Original) An imaging system as in claim 1 wherein:

said first gradient shield coil comprises a plurality of first shield winding turns forming a first sub-coil;

said second gradient shield coil comprises a plurality of second shield winding turns forming a second sub-coil, said second sub-coil positioned linearly adjacent to said first sub-coil and position within a single winding plane.

9. (Currently Amended) An imaging system comprising:

A primary gradient coil assembly; and

A shield coil assembly surrounding said primary gradient coil assembly, said shield coil assembly comprising:

a first gradient shield coil; and

a second gradient shield coil connected in parallel to said first gradient shield coil;

a pair of voltage rails in communication with said first gradient shield coil and said second gradient shield coil;

a first subcircuit in communication with said first gradient shield coil; and

a second subcircuit in communication with said second gradient shield coil, said first subcircuit and said second subcircuit independently adjustable such that the currents through said first gradient shield coil and said second gradient shield coil may be independently adjusted;

wherein said shield coil assembly comprises a plurality of winding turns formed in an asymmetrical pattern.

10. (Original) An imaging system as in claim 9 further comprising

at least one additional gradient shield coil connected in parallel to said first gradient shield coil and said second gradient shield coil.

11. (Currently Amended) An imaging system as in claim 9 wherein said first subcircuit and said second subcircuit are adjusted such that said first gradient shield coil has a resistance equal to said second gradient shield coil.

12. (Currently Amended)An imaging system as in claim 9 wherein:

said first gradient shield coil comprises a plurality of first shield winding turns; and

said second gradient shield coil comprises a plurality of second shield winding turns, said plurality of second shield winding turns having a non-identical ~~the same~~ number of turns as said plurality of first shield winding turns.

13. (Original) An imaging system as in claim 9 wherein:

said first gradient shield coil comprises a plurality of first shield winding turns and a plurality of winding gaps, each of said plurality of winding gaps formed between consecutive turns of said plurality of first shield winding turns; and

said second gradient shield coil comprises a plurality of second shield winding turns, each of said plurality of second shield winding turns positioned within on of said winding gaps.

14. (Original) An imaging system as in claim 9 wherein:

said first gradient shield coil comprises a plurality of first shield winding turns forming a first sub-coil;

said second gradient shield coil comprises a plurality of second shield winding turns forming a second sub-coil, said second sub-coil positioned linearly adjacent to said first sub-coil and position within a single winding plane.

15. (Original) An imaging system as in claim 13 wherein said plurality of first shield winding turns and said plurality of second shield winding turns are positioned within a single winding plane.

16. (Cancelled) An imaging system as in claim 9 wherein said shield coil assembly comprises a plurality of winding turns formed in an asymmetrical pattern.

17. (Currently Amended) A method of reducing the fringe field generated by a primary gradient coil assembly comprising:

running a first current through a first gradient shield coil connected in parallel to the primary gradient coil assembly; ~~and~~

running a second current through a second gradient shield coil connected in series to the primary gradient coil assembly, said second gradient shield coil connected in parallel to said first gradient shield coil;

adjusting said first current and said second current independently to minimize the fringe field.

18. (Cancelled) A method as described in claim 17, wherein said first current is equal to said second current.

19. (Cancelled) A method as described in claim 17, further comprising:

adjusting said first current and said second current independently to minimize the fringe field.

20. (Original) A method as described in claim 17, wherein said first current and said second current are passed through an equal number of winding turns.

21. (Original) A method as described in claim 17, wherein said first gradient shield coil and said second gradient shield coil share a single winding plane.